Research Article Open Access

Olutayo Gabriel Akinkunmi, Douglas Omoregie Aghimien* and Oluwaseyi Alabi Awodele

Appraising the use of labour-only procurement system for building construction in Nigeria

DOI 10.2478/otmcj-2018-0003
Received September 21, 2017; accepted March 27, 2018

Abstract: Labour-only procurement system is gaining fast popularity among construction clients who want to make savings by procuring materials themselves, leaving the contractor to provide only the labour needed. This study, therefore, appraised this procurement system by assessing its cost performance, its suitability, construction participant's willingness to use it for subsequent projects and its merits and demerits. Using a survey design approach through the use of questionnaire and a pro forma, data were gathered from a total of 98 construction professionals and contractors who have been involved in the use of this procurement system. Analyses of data were done using percentage, mean item score, Mann–Whitney *U* test and paired samples *t*-test. The study revealed that this procurement system is best for procuring residential buildings and minor alteration works. Construction participants who have used this system before are willing to still use it for subsequent works, as it delivers projects within budget and discourages short-changing of specifications and standard by contractors. However, the need for the time commitment and reduction in contractor's profit are its major disadvantages. For its cost performance, an overall cost saving of about 2% was discovered for the assessed 32 projects. The findings of this study will be beneficial to various interest groups such as clients and estate developers in selecting the right procurement option to use.

Keywords: building projects, construction, cost performance, cost saving, labour-only, Nigeria, procurement

***Corresponding author: Douglas Omoregie Aghimien,** Post Graduate School of Engineering Management, Faculty of Engineering and Built Environment, University of Johannesburg, South Africa, E-mail: aghimiendouglas@yahoo.com
Olutayo Gabriel Akinkunmi, Dannok Cost Consultants, Flat 6, Block D, Arondizuogu Close, off Jere Street, Garki II District, Abuja, Nigeria, E-mail: ayoakinkunmi@gmail.com
Oluwasey Alabi Awodele, Department of Quantity Surveying, Federal University of Technology, Akure, Nigeria, E-mail: deledayo4christ@yahoo.com

1 Introduction

The construction industry in Nigeria is fast growing with its activities having a direct bearing on the national economy. According to Dada (2012), the industry is important for the growth and development of the country. This is evident in its provision and maintenance of infrastructures. Ogunsemi (2015) emphasized that there is hardly any sector that exists without the production of the construction industry. Unfortunately, bold statements as regards the poor performance of the industry have been made (Akindoyin 1988; Ogunsemi and Saka 2006). This poor performance runs through the cost delivery of construction projects to the delivery in terms of schedule, quality, client's satisfaction and more. The dissatisfaction of clients coupled with the downtown in the economy of the country has led construction clients and even other stakeholders to seek possible ways to save cost in construction as this has proven to be an aspect of failure for the industry. This situation births the labour-only procurement system, which according to Adenuga (2003) and Ogunsanmi et al. (2003) is gradually gaining recognition in the Nigerian construction industry.

Ogunsanmi (2012) described the labour-only procurement system as the process of procuring a building with or without the use of construction professionals but with the help of a contractor who is employed on the basis of providing just labour. The client gets the needed construction materials, while the contractor provides the labour for the project. According to Department of Building and Housing (2012) and Hardy (2013), labour-only procurement system is adopted by clients who seek to have control of their building process and desires to save cost. However, Fagbenle and Amusan (2011), while comparing the time and cost performance of labour-only subcontractors in Nigeria, observed that they performed well in project delivery to schedule but not to estimated budget. Comparing this finding with previous ones that state that the system saves cost, the deficiency in this study may lie in the fact that the study employed survey of construction participant's opinion rather than empirical assessment of actual projects.

A client who desires to own a building will expect to obtain one that satisfies his needs as to form and quality, of which he will pay the most favourable price (Aghimien and Oke 2015). Based on this knowledge coupled with the need to achieve projects within budget, this study, therefore, appraised the use of labour-only procurement system through the assessment of the major types of building construction where this procurement system is mostly used and the perceived benefits and drawbacks of the system. In addition, the cost performance of the system was further assessed through the analysis of cost data gathered on building projects procured through this route in Abuja, Nigeria. The subsequent parts of the paper include the review of related literature, the methodology and the findings based on the analyses of data gathered. In the end, conclusions were drawn based on the findings of the study and recommendations made thereof.

2 Literature review

The performance of construction projects goes beyond the practical completion of the project. Certain criteria are considered before considering a project as successful, and in most cases, this is based on the project objectives. However, the use of cost has over the years been an essential criterion in measuring the overall performance of construction projects. The reason for this can be because of the huge priority placed on it by clients (Aghimien et al. 2017; Hatush and Skitmore 1997; Ogunsemi 2015). Unfortunately, the Nigerian construction industry has a significant problem of cost overruns as observed by Mbachu and Olaoye (1999) and Ogunsemi and Jagboro (2006). This situation has led to the dissatisfaction of most clients, leading them to getting involved in the procurement of construction works, thus allowing the promotion of discretionary procurement systems such as the labour-only procurement system. Aside the issue of poor cost performance associated with the construction industry, Ogunsanmi (2013) noted that the continuous unhealthy state of the country's economy has also promoted the use of the labour-only procurement system.

The use of this procurement system has been identified to be suitable for different types of construction. Ogunsanmi (2013) observed that it is mostly used for minor alteration or modification works. However, Babatunde et al. (2010) submitted that the use of labour-only procurement system is evident in large construction projects in Nigeria. Ogunsanmi (2012) gave the reason for this by stating that the downturn of the Nigerian economy has made construction clients to extend the use of labour-only procurement system to include procuring of new projects rather than using it for only alteration and modification works. According to Pilcher (1992), notwithstanding the complexity nature of the work undertaken by the construction industry, cost needs to be effectively monitored and controlled if the contractor wants to realize the anticipated profit margin and the project has to be completed within the budgeted cost for the client. The labour-only procurement system allows this as clients are involved and adequate monitoring is done by them.

Adenuga (2003) further stated that the labour-only procurement system provides an avenue for controlling the building process and achieving of cost savings in the process. In addition, it takes shorter building time and enhances the standard of workmanship as a contractor only concentrates on labour. It discourages short-changing of specifications and standard by contractors. It can be further adopted along with any procurement method and encourages trade-tested/artisan independency and prosperity. Some of its drawbacks as observed by Hardy (2013) include the reduction in the volume of contractor's profit and there may be little increase in the cost of some material procurement as the client may not be familiar or have inadequate knowledge/understanding of the market. In addition, it involves time, energy and diplomacy by the client. Mostly, only small construction companies are involved in the labour-only procurement system.

3 Research methodology

The study appraises the use of the labour-only procurement system in the delivery of building constructions. A survey design was used, and respondents were sampled through the use of a structured questionnaire. There are a number of sampling procedures upon which an appropriate sample can be selected, and the adequacy of a sample is assessed by how well such a sample represents the whole population. However, due to the particularity of this study, the targeted population was selected from the list of contractors who had registered with the Real Estate Developers Association of Nigeria (REDAN). Although literature has revealed that sample size is usually determined with the aid of mathematical formula using sample frame as a basis (Cohen et al. 2011), due to the fact that the list of registered contractors may not show those contractors who have been involved in the labour-only procurement system, mathematical formula was not applicable for this study. Therefore, this category of targeted respondents was regarded as hidden population and was assessed through the use of snowball sampling.

Heckathorn (2011) described snowball sampling as a technique that is based on the assumption that a link exists between the initial sample and others in the same targeted population, allowing a series of referrals to be made within a circle of acquaintance. Using the findings of the snowball sampling technique from the pilot survey revealed a total number of 56 contractors/subcontractors registered with REDAN and 42 practicing consulting construction professionals who have been involved in the labour-only procurement system. This formed the total population of this research, and a structured questionnaire was administered accordingly. The purpose of soliciting information from these consulting construction professionals was to get a balanced opinion with that gathered from the contractors. Information was not solicited directly from the construction clients because no definite project type (public or private) was selected from which a population could have been determined and the sample size drawn for them. Therefore, their views were taken care of by the construction professionals since they act on behalf of the clients on construction projects.

The questionnaire used had two sections with multiple-choice questions. Section A of the questionnaire dwelt on questions relating to the respondents' background. Section B was divided into various parts with each part addressing each objective of the study. Part 1 assessed the types of construction project suitable for the labour-only procurement system, while Part 2 assessed the benefits and drawbacks of the system. Allowance was made in this part for respondents to add other perceived benefits and drawbacks that were not discovered from the literature. Part 3 was designed to gather cost data of labour-only construction projects that the respondents have been involved in the past. This was aimed at assessing the performance of building projects procured through the use of labour only in terms of cost.

Data gathered on the background information were analysed using percentage, while the data gathered on the type of building projects suitable for the system, benefits and drawbacks of the system were analysed using mean item score (MIS). To determine the significant difference in the opinion of both sets of respondents (contractors/subcontractors and practicing construction professionals), the Mann–Whitney *U* test was used. The Mann–Whitney *U* test was selected because it is most suited for testing the significant difference or relationship existing in the view of two groups of respondents (Pallant 2005). In analysing the cost data gathered, percentile was adopted in determining the percentage deviation of the final cost from the initial cost. Paired samples *t*-test was also used in determining the significant difference between the initial and final costs of the assessed construction projects. Paired samples *t*-test was adopted because it is most suited for comparing the mean scores for the same group (projects executed using the labour-only contract) on two different occasions (initial and final costs of construction) (Pallant 2005). The internal consistency of the questionnaire used was tested using the Cronbach's alpha test, and values of 0.893 and 0.755 were derived for both the suitability and merits/demerits. This shows that the questionnaire used is reliable (Moser and Kalton 1999).

4 Findings and discussions

4.1 Background information on respondents

Out of a total of 98 questionnaires administered, 87 were duly completed and returned. This represents 89% response rate. This is above the usual response rate of 20–30% for questionnaire surveys in construction management studies, as suggested by Akintoye (2000). Result revealed that more response was gotten from the contractors/subcontractors (54%) than from the practicing construction professionals (46%). The most represented professionals were the engineers and the architects with 32.2% and 26.4%, respectively. This was followed by builders and quantity surveyors with 24.1% and 17.3%, respectively. Most of the respondents sampled possessed Higher National Diploma (29.9%) and B.Sc./B.Tech. (25.3%), while 24.1% and 20.7% had a post graduate degree and M.Sc./M.Tech., respectively. The Nigerian Society of Engineers had the highest professional membership, followed by the Nigerian Institute of Architects and Nigerian Institute of Builders with 32.2%, 26.4% and 24.1 respondents, respectively. The Nigerian Institute of Quantity Surveyors had the least membership with 17.2% respondents. The highest membership grade was the corporate membership with 64.4% respondents. This was followed by the graduate and probationer membership and the fellow membership with 28.7% and 6.9% respondents, respectively. In terms of years of experience, only 14.9% respondents had <5 years of working experience, with a better chunk of the respondents having ≥6 years of working experience. The respondents had an average year of working experience of 11 years, and the average number of labour-only projects handled was 12. With these vast years of working experience coupled with the high number of labour-only procured project handled, it, therefore, implies that the result got from the respondents can be relied upon.

4.2 Types of building construction project suitable for labour-only procurement system

In ascertaining the type of building construction project suitable for labour-only procurement system, the null hypothesis set was that there is no significant difference in the view of the construction professionals and the contractors/subcontractors on the types of construction project suitable for labour-only procurement system, while the alternate hypothesis was that there is a significant difference in the view of the construction professionals and the contractors/subcontractors on the types of construction project suitable for labour-only procurement system. The Mann–Whitney *U* test was used to test the stated hypothesis. Results gave a Z-value of −0.320 with a significant p-value of 0.749 as seen in Table 1. This p-value implies that at 95% confidence level, there is no statistically significant difference in the view of both the construction professionals and the contractors/subcontractors as to the types of construction project suitable for labour-only contract. Thus, the null hypothesis is accepted and the alternate hypothesis rejected.

The result in Table 2 shows the types of projects suitable for the use of the labour-only contract. From the table, it can be seen that both the construction professionals and the contractors/subcontractors believe that the labour-only procurement system is most suitable for residential buildings with an overall mean score of 4.84. Next to this is the use of labour-only contract for minor works such as repairs, maintenance and refurbishment with a mean score of 4.11. The system is only moderately suitable for an office building and an institutional building as a mean score of 3.66 and 2.92 was derived, respectively. However, it is evident from the table that this procurement system is not suitable for commercial and industrial buildings as a mean score of 1.85 and 1.07 was derived, respectively. This result is understandable since in most cases, these types of projects are highly capital intensive. Hence, clients will want to transfer the bottleneck associated with such projects to contractors and professionals, leaving them with little or no involvement in the project. This finding is in tandem with the report of Ogunsanmi (2013) that states that the labour-only procurement system is used for minor alteration or modification works. It is however in contrast with the submission of Babatunde et al. (2010) that the labour-only procurement system is being used to deliver large construction projects in Nigeria.

Tab. 1: Results of the Mann–Whitney *U* test.

Test	Suitability
Mann–Whitney *U*	16
Wilcoxon *W*	37
Z	−0.32
Asymptotic significance (2 tailed)	0.749
Exact significance (2*[1-tailed significance])	0.818

4.3 Perceived merits and demerits of labour-only procurement system

In determining the perceived merits and demerits of the labour-only procurement system, the null hypothesis set was that there is no significant difference in the view of the construction professionals and the contractors/subcontractors on the merits and demerits of the labour-only procurement system, while the alternate hypothesis was that there is significant difference in the view of the construction professionals and the contractors/subcontractors on the merits and demerits of the labour-only procurement

Tab 2: Building construction project suitable for labour-only contract.

Building Construction	Construction professionals		Contractors/ subcontractors		Overall rating	
	MIS	Rank	MIS	Rank	MIS	Rank
Residential building	4.85	1	4.83	1	4.84	1
Minor alteration/modification (building works involving repairs, maintenance and refurbishments)	4.23	2	4.02	2	4.11	2
Office building (shops, plaza, general office building)	3.78	3	3.55	3	3.66	3
Institutional building (class rooms, hostels, dormitories, schools, sports facilities, etc.)	3.00	4	2.86	4	2.92	4
Commercial building (hospitals and clinics, warehouses, shopping centres, hotels, etc.)	1.93	5	1.79	5	1.85	5
Industrial building (manufacturing, power generation, medicine, petroleum, etc.)	1.05	6	1.09	6	1.07	6

system. Mann–Whitney *U* test gave a significant *p*-value of 0.688 and 1.00 for both the merits and demerits as seen in Table 3. This *p*-value shows that there is a no significant difference in the view of both sets of respondents as to the merits and demerits of the labour-only procurement system. Thus, the null hypothesis is accepted and the alternate hypothesis rejected.

Table 4 shows the stakeholders' view as to the merits and demerits of the labour-only procurement system based on their experience in its usage. It is evident from the table that creating a strategy for saving money on projects by clients, discouraging short-changing of specifications and standard by contractors and reduction of contractor's overhead are the major merits as these ranked top with an overall mean score of 4.45, 4.38 and 4.18, respectively. This implies that the use of labour-only contract will bring about adequate savings for the client and also reduce the overhead of a contractor, thereby reducing the cost of construction of the project. It also discourages reduction in specifications that may arise from contractor's willingness to cut corners during the procurement of construction materials. The least merits identified are enhancing the standard of workmanship and adoption in any procurement method with an overall mean score of 3.40 and 3.34, respectively. Although these merits are ranked as the least, they still have a high significance as they are well above the average of 3.0. Hence, the use of labour-only contract will also enhance the standard of workmanship on any given construction project and it can also be adopted in any other procurement system.

The result also shows that the major demerit of the use of the labour-only contract is its need for time commitment, energy and diplomacy. This was ranked the highest by both categories of respondents with an overall mean score of 4.36. Reduction in the volume of contractor's profit was ranked second by the practicing construction professionals, while it was ranked third by the contractors/subcontractors. The contractors/subcontractors however ranked its limitation to only small construction companies/firms as second. The overall reduction in the volume of contractor's profit and its limitation to only small construction companies/firms were ranked as second and third with a mean score of 4.22 and 4.18, respectively. Lack of knowledge of the market that might lead to increase in client's material procurement was ranked as the least

Tab. 3: Results of the Mann–Whitney *U* test.

Test	Merits & Demerits
Merits	
Mann–Whitney *U*	15.5
Wilcoxon *W*	36.5
Z	−0.401
Asymptotic significance (2 tailed)	0.688
Exact significance (2*[1-tailed significance])	0.699
Demerits	
Mann–Whitney *U*	12.5
Wilcoxon *W*	27.5
Z	0
Asymptotic significance (2 tailed)	1
Exact significance (2*[1-tailed significance])	1.000

Tab. 4: Merits and demerits of the use of labour-only contract.

Merits & Demerits	Construction professionals		Contractors/ subcontractors		Overall rating	
	MIS	RK	MIS	RK	MIS	RK
Merits						
Strategy for saving money on projects by clients	4.40	1	4.49	1	4.45	1
Discourages short-changing of specifications and standard by contractors	4.38	2	4.38	2	4.38	2
Reduces contractor's overheads	4.20	3	4.17	3	4.18	3
Encourages trade-tested/artisan independency and prosperity becoming subcontractor	3.73	4	3.47	4	3.59	4
Enhances standard of workmanship as a contractor only concentrates on labour	3.45	5	3.36	5	3.40	5
Can be further adopted in any procurement method	3.43	6	3.28	6	3.34	6
Demerits						
It involves time commitment, energy and diplomacy by the client to achieve the project	4.33	1	4.38	1	4.36	1
The volume of contractor's profit is reduced	4.30	2	4.15	3	4.22	2
Limited to only small construction companies/firms	4.05	4	4.30	2	4.18	3
Results to the use of negotiated tendering approach in most cases	4.28	3	4.06	4	4.16	4
Lack of knowledge of the market might lead to increase in client's material procurement	3.73	5	3.70	5	3.71	5

MIS, Mean Item Score; RK, Rank.

Tab. 5: Paired samples t-test for cost performance of labour-only contract projects.

		Paired differences						*t*	df	Significance (2 tailed)
		Mean	Average mean	Standard deviation	Standard error mean	95% confidence interval of the difference				
						Lower	Upper			
Pair 1	Final cost	41,131,250.00	−519,353.21	2,750,730.40	486,265.02	−1,511,097.27	472,390.84	−1.068	31	0.294
	Initial cost	41,650,603.21								

demerit of the use of the labour-only contract with a mean score of 3.71. Although this is ranked as the least, it still has a mean score of >3.0, which implies that it is also a significant demerit of the system. Findings of this research further affirm the submissions of Adenuga (2003) and the Department of Building and Housing (2012) that the labour-only procurement system provides an avenue for controlling the building process and achieving of cost savings. It is also in line with the assertion of Hardy (2013) that the labour-only procurement system needs lots of time commitment on the part of the client in order to adequately achieve the objectives of a project.

4.4 Variability in cost of the labour-only procurement system

Table 5 shows the results of the paired samples *t*-test carried out to evaluate the variability in the cost of construction projects procured through the use of labour-only contract using cost data of previous labour-only procured works provided by the respondents. These labour-only procured projects ranged from alteration/modification to new construction works. From the table, it can be deduced that there was a decrease in cost from the initial mean estimated cost of construction of 41,650,603.21 to the final mean cost of construction of 41,131,250.00 with a *t*-value of −1.068 and a *p*-value of 0.294. Since the *p*-value derived is greater than 0.05, it means that no statistically significant difference exists between the initial estimated cost and the final cost of construction of these assessed projects. This is contrary to the assertion of Fagbenle and Amusan (2011) that cost overrun is prominent in labour-only procured projects. The disparity in both studies may be based on the method in which both research were conducted. While Fagbenle and Amusan (2011) used the survey of construction participant's opinion, this study adopted the use of quantifiable data on labour-only procured building projects.

Further analysis in Table 6 shows details of the cost data gathered on the building projects procured through the use of labour-only contract as provided by the respondents. The results show that out of the 32 construction projects, 21 finished below the initial estimated cost, while 11 completed above the budget. Overall, the average deviation of the final cost from the initial cost was −519,353.21. This implies that using the labour-only contract, these 32

Tab. 6: Cost performance of construction works procured through labour-only contract.

S/N	Type	Final cost (₦ million)	Initial cost (₦ million)	Deviation (₦ million)	Percentage
1	Office	17.60	18.00	−0.40	−2.22
2	Office	13.00	15.00	−2.00	−13.33
3	Office	119.00	122.00	−3.00	−2.46
4	Office	7.60	7.80	−0.20	−2.56
5	Office	49.60	50.00	−0.40	−0.8
6	Office	44.00	45.50	−1.50	−3.3
7	Office	112.00	120.00	−8.00	−6.67
8	Residential	64.40	65.00	−0.60	−0.92
9	Residential	25.20	25.00	0.20	0.8
10	Residential	19.00	19.50	−0.50	−2.56
11	Residential	6.95	7.10	−0.15	−2.11
12	Residential	6.20	6.25	−0.05	−0.8
13	Residential	17.90	18.15	−0.25	−1.38
14	Residential	12.00	11.00	1.00	9.09
15	Residential	59.00	60.00	−1.00	−1.67
16	Residential	45.00	48.00	−3.00	−6.25
17	Residential	12.00	8.00	4.00	50
18	Residential	11.75	11.60	0.15	1.29
19	Residential	12.80	13.50	−0.70	−5.19
20	Residential	7.50	7.30	0.20	2.74
21	Residential	5.23	5.00	0.23	4.6
22	Residential	10.20	8.00	2.20	27.5
23	Residential	5.50	6.00	−0.50	−8.33
24	Residential	22.80	19.12	3.68	19.25
25	School	33.00	34.00	−1.00	−2.94
26	School	37.00	35.00	2.00	5.71
27	School	18.00	15.00	3.00	20
28	School	16.27	20.00	−3.73	−18.65
29	School	4.50	5.00	−0.50	−10
30	School	45.00	40.00	5.00	12.5
31	School	31.20	35.00	−3.80	−10.86
32	Warehouse	425.00	432.00	−7.00	−1.62
		Average deviation		*−0.52*	*1.53*

projects made an average saving of 519,353.21. Omoregie and Radford (2006) discovered an average of 14% escalation cost of public projects in Nigeria. These projects were procured via diverse procurement methods. Aghimien et al. (2017) also discovered 4.87% cost overrun on educational buildings procured through diverse procurement routes in Nigeria. Comparing the findings of this study to these past researches, it can be deduced that the labour-only procurement system can give some measure of cost savings for the client.

5 Conclusion

This study set out to appraise the use of the labour-only procurement system in the delivery of building constructions. Using a survey design, the types of construction projects suitable for this system, the merits and demerits of this system and the variability in the initial and final costs of labour-only procured building projects have been ascertained. Based on the findings, the following conclusions were made.

The use of the labour-only procurement system is only suitable for small, privately owned projects such as residential building and minor alteration or modification works. It is not suitable for large construction projects that involve high technicality and high capital. Thus, only private clients seeking to acquire small projects are likely to adopt the system of procurement. This is a major limitation for this system among other issues such as the need for time commitment on the part of the client, reduction in contractor's profit and its usage by only small contractors. However, besides its limitations, the labour-only procurement system can be beneficial to clients who have limited budget and still want to achieve projects delivered within the specification of their available budget. Although the analysis shows a meagre 2% overall savings on the assessed labour-only projects, clients can still have considerable confidence in terms of achieving their desired construction within their available finance. Considering the harsh economy situation in Nigeria, where adequate finance is a major issue, this labour-only procurement system can actually prove to be highly favourable for private clients.

The study, therefore, recommends that the use of the labour-only procurement system should be encouraged among construction participants trying to achieve small construction projects within the available budget. However, care must be taken not to adopt this procurement option for high capital and very technical projects. Such huge budget projects should be handled using more sophisticated and suitable procurement methods because of their need for high technical expertise, an area wherein the labour-only procurement system is less suitable. In addition, since the reduction in contractor's profit is a major disadvantage of the system, some sort of incentive that will motivate the contractor into taking more labour-only jobs can be arranged by the client.

The findings of this study will be beneficial to various interest groups such as clients and estate developers, as it reveals the true nature of the labour-only procurement system. However, findings of this research provide possible directions for further studies since it was limited to the labour-only procurement system for building construction projects in Abuja. A similar study can be carried out in other areas or geopolitical zones within the country in order to get a wider view of the topic.

References

Adenuga, O. A. (2003). Management of Labour-Only Contracts in the Nigerian Construction Industry, Bases of Award and Execution. In: *Proceeding of 1st International Conference on Global Construction 2003*, University of Lagos, Lagos, 1-4 December, 18.

Aghimien, D. O., & Oke, A. E. (2015). Application of value management to selected construction projects in Nigeria. *Developing Country Studies, 5*(17), pp. 8-14.

Aghimien, D. O., Awodele, O. A., Adegbembo, T. F., & Olatunji, S. O. (2017). Cost Performance of Educational Buildings in Ondo State, Nigeria. In: *Environmental Design and Management International Conference (EDMIC)*, 22–24 May, Obafemi Awolowo University, Ile-Ife, Nigeria, pp. 298-307.

Akindoyin, A. (1988). The management of abandoned projects, *Journal of the Nigerian Institute of Building*, *Maiden Edition*, pp.16-20.

Akintoye, A. (2000). Analysis of factors influencing project cost estimating practice. *Construction Management and Economics, 18*, pp. 77-89.

Babatunde, S. O., Opawole, A., & Ujadughe, I. C. (2010). An appraisal of project procurement methods in the Nigerian construction industry. *Civil Engineering Dimension, 12*, pp. 1-7.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research Methods in Education*, 7th edn. Routledge, New York.

Dada, M. O. (2012). "A second look: Stakeholders' perceptions of some issues in design bid-build procurement practice in Nigeria. *Journal of Sustainable Development, 5*(1), pp. 55-63.

Department of Building and Housing. (2012). "Dealing with trades people. Types of contract". Available on: https://www.consumer.org.nz/articles/types-of-building-contracts.

Fagbenle, O. I., & Amusan, L. M. (2011). Comparative study of the time and cost performance of labour-only subcontractors in the construction industry in South Western Nigeria. *Journal of Building Performance, 2*(1), pp. 94-105.

Hardy, G. (2013). *The pitfalls of labour-only building contracts*, ADLS. Available on: https://www.adls.org.nz/for-the-profession/news-and-opinion/2013/4/12/the-pitfalls-of-labour-only-building-contracts/.

Hatush, Z., & Skitmore, R. M. (1997). Evaluating contractor prequalification data: Selection criteria and project success factors. *Construction Management and Economics, 15*(2), pp. 129-147.

Heckathorn, D. D. (2011). "Comments: Snowballing versus respondent-driven sampling. *Sociological Methodology, 41*(1), pp. 355-366.

Mbachu, J. K., & Olaoye, G. S. (1999). Analysis of major cost overrun factors in building project execution. *Nigerian Journal of Construction Management, 2*(1), pp. 81-86.

Moser, C. A., & Kalton, G. (1999). *Survey Methods in Social Investigation*, 2nd edn. Gower Publishing Company Ltd, Aldershot.

Ogunsanmi, O. (2012). Comparisons of procurement characteristics of traditional and labour-only procurements in housing projects in Nigeria. *Civil and Environmental Research, 2*(8), pp. 1-10.

Ogunsanmi, O. E. (2013). Comparisons of performance of traditional and labour-only procurement in construction projects in Nigeria. *DBA Africa Management Review, 3*(2), pp. 1-15.

Ogunsanmi, O. E., Iyagba, R. O. A., & Omirin, M. M. (2003). A comparative study of the performance of traditional and labour-only procurement in Nigeria. *Journal of the Nigeria Institute of Building,* pp. 12-27.

Ogunsemi, D. R. (2015). Value for Money in Construction Projects: The Quantity Surveyor's Quest. In: *71st Inaugural Lecture delivered by Prof. D. R. Ogunsemi at the 2500 Capacity Auditorium*, Federal University of Technology, Akure, Ondo State.

Ogunsemi, D. R., & Jagboro, G. O. (2006). Time-cost model for building projects in Nigeria. *Construction Management and Economics, 24*, pp. 253-258.

Ogunsemi, D. R., & Saka, N. (2006). The NEPAD Initiative and the Challenge of Efficient Cost Management of Infrastructure Development in Nigeria. In: *Paper Presented at the 22nd Biennial Conference of the Nigeria Institute of Quantity Surveyors*, Calabar, 22-25 November.

Omoregie, A., & Radford, D. (2006). Infrastructure delays and cost escalation: Causes and effects in Nigeria. In: *Proceeding of Sixth International Postgraduate Research Conference*, Delft University of Technology and TNO, pp. 79-93.

Pallant, J. (2005). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS for Windows (Version 12)*. Allen & Unwin, Crows Nest, NSW, Australia.

Pilcher, R. (1992). *Project Cost Control in Construction*, 2nd edn. Oxford Blackwell Science.